

## CLAIMS

We claim:

1. A vacuum panel comprising a discontinuous or porous filling material (5) enclosed between at least two barrier sheets (6) mutually joined along the edges, and at least one  
5 rheophore suitable for electrically powering at least one device (1, 2, 3, 3', 4, 4') arranged inside the vacuum panel, wherein the at least one rheophore is arranged gas-tight between the at least two barrier sheets (6).
2. The vacuum panel according to claim 1, wherein each rheophore comprises a  
10 conductive band (7,7') comprising at least one conductive layer (8) enclosed between at least two insulating layers (9).
3. The vacuum panel according to claim 2, wherein the at least two insulating  
layers (9) are mutually joined along the edges.
4. The vacuum panel according to claim 2, wherein the at least two insulating  
15 layers (9) comprise at least one tape of a polymeric material, and wherein the polymeric material is at least compatible with a material comprising the at least two barrier sheets (6).
5. The vacuum panel according to claim 4, wherein the at least two insulating  
layers (9) comprise a heat sealable tape of high density polyethylene (HDPE).
6. The vacuum panel according to claim 2, wherein a thickness of the at least  
two insulating layers (9) is between 50 and 100  $\mu\text{m}$ .
- 20 7. The vacuum panel according to claim 2, wherein the at least one conductive  
layer (8) comprises an aluminum tape.
8. The vacuum panel according to claim 2, wherein a thickness of the at least  
one conductive layer (8) is between 4 and 10  $\mu\text{m}$ .
- 25 9. The vacuum panel according to claim 2, comprising two insulating layers (9)  
each comprising a polymeric film, wherein at least one polymeric film comprises a metallized  
surface located between the films and acting as the conductive layer (8).

10. The vacuum panel according to claim 2, wherein the at least one conductive band (7, 7') is sealed together with edges of the at least two barrier sheets (6) of the vacuum panel by heat sealing.

11. The vacuum panel according to claim 2, wherein at least one end of the at least one conductive band (7, 7') has pins (10, 11) for connection to devices arranged outside and/or inside the vacuum panel.

12. The vacuum panel according to claim 11, wherein the pins (10, 11) cross the at least one conductive band (7, 7') to produce an electric connection with the at least one conductive layer (8).

13. The vacuum panel according to claim 12, wherein the pins (10, 11) are joined to clamps (13, 14) having tips which protrude into the conductive bands (7, 7') and are arranged between the borders (15, 16) of the conductive bands (7, 7') which are folded over and heat sealed onto the bands (7, 7') so as to enclose and insulate the tips of the clamps (13, 14).

14. The vacuum panel according to claim 1, wherein the at least one device (1, 2, 3, 3', 4, 4') arranged inside the vacuum panel comprises a sensor for measuring a pressure (P) of residual gases in the vacuum panel.

15. The vacuum panel according to claim 14, wherein the sensor comprises a housing (1) connected with an interior of the vacuum panel, and wherein the housing encloses a wire (2) comprising a conductive material for conducting an electric current ( $I_2$ ) and becoming hot due to the Joule effect.

16. The vacuum panel according to claim 15, wherein the housing (1) is gas permeable.

17. The vacuum panel according to claim 15, wherein the housing (1) has a substantially cylindrical shape having a diameter  $d_1$ , the wire (2) defines a diameter  $d_2$ , and  $d_1 \gg d_2$ .

18. The vacuum panel according to claim 17, wherein the housing (1) has two ends, each having a closing element (3, 3') crossed by a conductive terminal (4, 4'), and wherein

the wire (2) has a taut arrangement in a middle of the housing (1) in a coaxial arrangement with the housing.